UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

August 18, 1994

38054.000
19.41.00.~~0043~~
ID-00392

4WD-FFB

Mr. Mark Taylor, Remedial Project Manager
Southern Division
Naval Facilities Engineering Command
Code 1861
P.O. Box 190010
North Charleston, South Carolina 29419-9010

SUBJ: NAVAL AIR STATION MEMPHIS
Draft Comprehensive RFI Work Plan
Draft Group II RFI Work Plan (Assembly A)
Comments

Dear Mr. Taylor:

Enclosed are the United States Environmental Protection Agency's (EPA) and the Tennessee Department of Environment and Conservation's (TDEC) comments on the Draft Comprehensive RFI Work Plan and the Draft Group II Work Plan (Assembly A). These comments are the result of the numerous RFI working sessions held throughout the last several months. During the last two working sessions involving the BCT and TRC, discussions ensued regarding several of EPA's and TDEC's comments. After these discussions it was generally felt that consensus had been reached on the issues raised. The responses to the comments should accompany the Final RFI Work Plans.

The Final RFI Work Plan and Final Assembly A Work Plan should be submitted no later than 45 days from the receipt of this letter. Additionally, it is understood that the Assembly A Work Plan will now include SWMUs 3 and 7.

If you have any questions regarding the enclosed comments, please contact me at 404-347-3555 X2058.

Sincerely,

David G. Williams
Remedial Project Manager/BRAC

Enclosure

cc: Jordan English, TDEC
Tennessee Department of Environment and Conservation

COMMENTS
DRAFT COMPREHENSIVE RFI WORK PLAN AND
DRAFT GROUP II RCRA RFI WORK PLAN
NAS MEMPHIS

GENERAL COMMENTS

Conceptual Hydrogeological Model

A review of site stratigraphic data (work plan Appendix A; well logs presented in various "Confirmation Study" appendices in the Site Investigation Plan for Group II sites) indicates that the uppermost zone of saturation across the site is in generally low permeability silty or clayey earth material. Existing monitoring wells generally penetrate only the uppermost zone of saturation; proposed initial monitoring wells for the RFI generally follow this same pattern of screening only the upper part of the saturated zone. Based on the data presented in these work plans, where deeper strata have been investigated (note SWMU Appendix A lithologic logs in the Draft Group II RCRA RFI Work Plan), sands were found below the clay and silt.

The local stratigraphy may necessitate a more site-specific ground water monitoring approach than is planned in these draft work plans. In the upland areas of probable ground water recharge, ground water flow paths through the upper low permeability zones could primarily be downward, into more permeable underlying strata. If so, lateral ground water contaminant migration in the upper, low permeability saturated zone could be very limited. Very shallow monitoring wells constructed at the periphery of waste disposal areas will not intercept deeper, potentially significant contaminant plumes in more permeable zones. Therefore, using shallow ground water quality data to determine the need for deeper zone ground water monitoring may not be appropriate. Deeper wells screened in more permeable strata would be most appropriate for evaluating lateral ground water contaminant transport in such cases.

Conversely, for a contaminant source in or near a ground water discharge area, upward hydraulic gradients from deeper, more permeable strata to the ground water discharge area would be present. In such a hydrogeologic setting, ground water flow patterns probably limit ground water contamination from the source in or near the discharge area to the upper part of the saturated zone. Where significant upward hydraulic gradients are delineated, monitoring over shorter screened intervals than those proposed in the comprehensive work plan would likely be appropriate.

Both the Draft Comprehensive Work Plan and the Draft Group II RCRA RFI Work Plan should include a conceptual hydrogeologic setting analytical approach in development of their proposed ground water monitoring schemes. At this facility, identification of vertical hydraulic gradients, potential vertical flow paths and contaminant

migration rates in the vertical direction, and the presence of permeable zones several feet or tens of feet below the water table may be very important. In order to assess the potential significance of vertical ground water flow in both recharge and discharge areas, a more comprehensive initial site screening program of deeper soil borings, water level monitoring at different depths, slug testing (or the equivalent) of deeper zones of potentially higher permeability, and ground water sampling should be proposed.

DRAFT COMPREHENSIVE RFI WORK PLAN

1. A general site location map and individual topographic site maps are absent from this Draft Comprehensive RFI Work Plan. Maps at scales appropriate for depicting information for Solid Waste Management Units (SWMUs) 1, 2, 5, 8 and 60 are essential for the adequate description of the environmental setting. This is particularly important in assessing potential groundwater flow direction and surface water migration routes.

2. The text states that the samples collected from SWMU 1 will receive full scan analysis (FSA) less cyanide. The samples collected from SWMUs 2, 5, 8 and 60 will all be analyzed for FSA and cyanide. An explanation should be provided in the text stating why all of the samples collected from SWMU 1 will not also be analyzed for cyanide.

3. The text states that the following two publications will be included in the polyvinyl chloride (PVC) well justification appendices: " 'Influence of Casing Materials on Trace-Level Chemicals in Well Water' (Parker, 1990) and 'Leaching of Metal Pollutants From Four Well Casing used for Groundwater Monitoring' (Hewitt, 1989),"; however, the PVC well justifications provided for SWMUs 1 and 5 do not include these publications as stated. These publications should be included.

4. The Introduction states that each background well sample collected will be analyzed for the full SW-846 analyte list. The text should state and describe which parameter groups from SW-846 will be analyzed.

SPECIFIC COMMENTS

DRAFT COMPREHENSIVE RFI WORK PLAN

Section 4

1. Section 4: General Sampling Procedures, pg 4-3

   The sixth bullet states pre-cleaned (by manufacturer), disposable sampling equipment will be used and rinse blanks will be collected prior to its use. The decontamination procedures implemented by the manufacturer to clean the disposable equipment should be included in the work plan before this can be considered adequate. The decontamination procedures used by the manufacturer should be comparable to those in Appendix B of the US-EPA, Region IV, Environmental Services Division, Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual, February 1, 1991 (ECBSOPQAM).

2. Section 4.4: Soil Sampling, pg 4-17

   The trade name Xi-Tech sampler is used in the soil sampling explanation. A comprehensive description and diagram of the XI-Tech sampler should be included in the work plan.

3. Section 4.4.3: Surface Soil Sample Collection, pg 4-21

   Grab samples should be homogenized, excluding samples collected for volatile organic compound (VOC) analyses.

4. Section 4.5.3.1: Monitoring Well Installation (Unconfined Aquifers), pg 4-42

   The work plan states the bentonite seal will be allowed to hydrate according to the manufacturer's specifications. The ECBSOPQAM recommends a hydration time of eight hours or to the manufacturer's specifications, whichever is greater.

5. Section 4.6.1: Purging Static Water, pg 4-55

   According to Section 7.2.4 of the draft technical guidance for RCRA ground water monitoring (EPA/530-R-93-001), "Purging should be accomplished by removing ground water from the well at low flow rates using a pump." This document lists a recommended purging rate and a rationale for well purging using a pump, rather than a bailer. This guidance is particularly appropriate to ground water monitoring in a silt-rich aquifer or monitoring zone as is apparently found throughout the NAS Memphis facility at the top of the saturated zone. We

strongly recommend that the purging protocol described in the referenced EPA guidance document be followed at the NAS Memphis facility. Adherence to the purging protocol in this guidance document may require revision of several sections of the work plan relating to well purging.

6. Section 4.7.2.3: Scoop Samples, pg 4-62

   Grab samples should be homogenized, excluding samples collected for VOC analyses.

7. Section 4.7.2.3: Scoop Samples, pg 4-63

   Samples collected for toxicity analyses should be homogenized.

8. Section 4.9.4.1: Slug Testing, pg 4-79

   The type of data logger that will be used during the slug testing should be provided.

9. Section 4.9.4.1: Slug Testing, pg 4-81

   Under the section "Quality Control Requirement for Slug Tests" a contingency plan should be in place in the event the data logger ceases to operate during a slug test.

10. Section 4.9.4.2: Pumping Tests, pg 4-83

    Under the section "Multi-Well Pumping Test", the work plan states "Draw down and recovery data from each test will be plotted to produce time versus draw down graphs." State how the data will be presented to represent distance.

11. Section 4.10.2: Laboratory Analysis, pg 4-88

    It is stated that volatile organics (VOCs), semi-volatile organics (SVOCs), and metals will be sampled for under this work plan. It should also be stated that the target compound list (TCL) analysis for pesticides/PCBs (as provided in Appendix C) will be analyzed for in all samples.

12. Section 4.14.1: Applicable Guidance Documents, pg 4-109

    a. Periodic revisions are made to SW-846. If a particular method has been revised, the updated version should be used. The reference should indicate from which edition or update the methods are taken.

    b. The CLP Statement of Work for organic analyses has been updated. The current version is OLM01.1-8.

13. Section 4.14.4: Applicable Regulations, pg 4-117

    Same as comments 12.a. and 12.b.

Section 6

1. Section 6.3.2.2: Soil, pg 6-19

   The following should be considered when addressing partitioning coefficients:

   a. The approach of comparing a soil contaminant concentration divided by that contaminant's soil-water partitioning coefficient (K_d) to the contaminant's ground water quality criterion is a valid screening technique. However, this approach would generally be overly conservative in establishing a soil remediation goal for ground water protection. EPA Region IV considers this method to be an initial screening technique which should generally be followed up, if necessary, by subsequent data collection and modeling of soil contaminant leaching to determine a soil remedial goal protective of ground water. Model selection should be based upon the site-specific hydrogeologic conditions and the type of contaminants present at a site.

   b. The work plan does not define and thoroughly discuss how soil-water partitioning coefficients used for the analysis of potential threats to ground water will be determined. For low concentrations of organic chemicals in soil, use of a published organic carbon partitioning coefficient (K_{oc}), multiplied by a site-specific soil organic carbon concentration, should be an appropriate method of estimating an organic contaminant K_d. However, site-specific estimates of metals soil-water partitioning are needed in order to define the leachability of these contaminants. The work plan should define an approach for developing site-specific metals partitioning data, if necessary, to determine potential threats to ground water quality from contaminant leaching.

Section 7

1. Section 7.0: Comprehensive Health and Safety Plan (CHASP), pg 7-1, paragraph 5

   The sentence should state that USGS and E/A&H employees certified in CPR and First Aid will be on site during all site activities.

Section 8

1. Section 8.0: References, pg 8-3

   a. Periodic revisions are made to SW-846. If a particular method has been revised, the updated version should be used. The reference should indicate from which edition or update the methods are taken.

Draft Group II RCRA RFI WORK PLAN

GENERAL COMMENTS

1. Under the heading "Soil Investigation" for the site investigation plans (SIPs) at each SWMU, a PID was proposed for field screening of samples collected from subsurface soil borings to determine which samples would be submitted for laboratory analysis. ECB recommends using a field GC with Level I or II DQOs for screening soil samples. A field GC operated by an experienced chemist is a more reliable method of field screening than the PID.

2. In the section "Analytical Requirements" for each SWMU SIP the work plan states 80 percent of the samples collected will be analyzed using Level III DQOs and 20 percent will be analyzed using Level IV DQOs. ECB recommends 100 percent of the samples be analyzed using Level III DQOs and 20 percent of the total number of samples be split and the splits be analyzed using Level IV DQOs. This will provide a basis for comparison with the Level III DQO data. Section 4.4.3 of the ECBSOPQAM requires a minimum of 5% splits at Level IV when DQO Level III is used.

SWMU 1

1. Section 4.1: Interim Measures (IM) Investigation - Southdiv, USGS, E/A&H (March 1993), pg 8

   ECB does not accept the data report by Shacklette and Boerngen in Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States (1984) as background data. Only data obtained from background samples collected on site is acceptable.

SWMU 2

1. Section 2.1, Figure 2, pg 7

   The water level information presented in Figure 2 is from the 1985 Confirmation Study, Verification Report. This information is 8 years old. If more recent water level data is available, it should be included to more accurately reflect current groundwater flow conditions. New water level data should be collected during each sampling episode so the water level measurements, groundwater contours and groundwater flow direction for SWMU 2 reflect current conditions.

2. Section 3, pg 9, paragraph 4

   The text states that "the physical, chemical, and migration/dispersal characteristics of any contaminants identified during the RFI as exceeding the appropriate action levels will be determined from reference materials." This statement should be clarified.

3. Section 4.3: Figure 3, pg 15

   Move one of the two downstream samples to the downstream corner of the landfill. If an additional sample is added to the downstream corner of the landfill then information should be provided clarifying why two sediment samples will be collected from the same location.

SWMU 5

1. Section 2.0: pg 3, Figure 1

   Figure 1 does not show the "IMWP area" that is shown on Figure 1 of the Introduction. Clarification should be provided.

SWMU 60

1. Section 4.3, pg 14, paragraph 3:

   A statement should be added to the text describing the well construction materials to be used at SWMU 60.

Tennessee Department of Environment and Conservation

COMMENTS
DRAFT COMPREHENSIVE RFI WORK PLAN

SPECIFIC COMMENTS

1. Introduction: pg 1-6.

   What authority (EPA, TDEC, SOUTHDIV) decided that SWMU 1 did not require immediate corrective action? Please note in document.

2. Introduction: pg 1-8.

   General comment. Was the closure procedure for Group III SWMU's adequate by todays standards?

3. Section 1.2: Solid Waste Management Groups, pg 1-10, Under Group I paragraph.

   Please clarify and include what agency(s) did not recommend these SWMU's for immediate corrective actions, What was the rational for this decision?

4. Section 1.3: Group VII, pg 1-15.

   This paragraph is confusing. Does the second sentence mean petroleum wastes were present? If so, are these waste being investigated or remediated? Please clarify.

5. Section 2.4: Industrial operations and waste generation, pg 2-13.

   The non-hazardous waste sites may not need to be discussed here, however, they should be identified and located on maps as nonhazardous sites for future reference and completeness. In addition, have these nonhazardous sites been adequately assessed at this time?

6. Section 2.11: Surface Water Sediments, pg 2-44.

   According to the EPA, storm water drainage ways or wet weather conveyances are considered intermittent in this area of the country. The TDSF suggests that this sample media be designated as a sediment/soil sample.

7. Section 2.12.31: SWMU 46, pg 2-56.

   Since the ground was unprotected with no spillage containment at time of storage, then the following sentence is inappropriate. This sentence suggests that there is no

evidence of a hazardous substance release at the site. The site was completely disturbed when demolition of the building occurred. Clarify the nature of such evidence.

8. Section 2.12.39: SWMU 59, pg 2-58.

   General Comment - This could be potentially a hazardous site, with a large area of contamination due to flooding.

9. Section 3.1.1: Regulatory oversight, pg 3-1.

   David Williams replaces Allison Drew as remedial project Manager.

10. Section 3.1.1: Regulatory oversight, pg 3-2.

    Delete Ms. Colleen Powers. Add Clint Willer - Director TDSF/NCO, Jordan English and Jim Morrison - TDSF/MFO, Leslie Leeds - DSWM/NCO

11. Section 4.2.2: Sample Processing, Bottom bullet, pg 4-4.

    Trip blanks should be kept with filled and unfill sample bottles at all times as practicable during sampling event.

12. Section 4.3.2: After the Well Inventory, pg 4-9.

    Wells with damaged surface seals indicate a well that is technically unable to be sampled, due to the high potential for surface water infiltration. Please clarify last sentence.

13. Section 4.9.2: Water Level Indicator, pg 4-77.

    In addition to the described procedure, and because the NAS Memphis covers such a vast area, time of day and barometric pressure should be recorded and incorporated as part of the procedure. Their effect on the water column could be crucial for correlation purposes given the flat terrain over the Facility proper.

14. Section 6.0: Potential Receptors, pg 6-1, 1st para.

    What entity or authority is to develop the set of health and environmental criteria (action level) during the HEA for comparison?

15. Section 6.3.1.1: Wetland Delineation Procedures, pg 6-11

    Will any sampling facilitation require ARAP or COE Permits? (i.e. build roads to install monitoring wells)

16. Section 6.3.2.2: Sediment, pg 6-19.

See comment six (6) above.

17. Section 7.0: Comprehensive Health and Safety Plan, pg 7-1.

According to OSHA, all persons within active work zones, must be 40 Hr. trained under the HAZWAPER Rule.

18. Section 7.1.1: The exclusion zone, pg 7-3.

An updated document package on respirator training for these personnel must be made available and easily accessible for inspection.

19. Section 7.1.1: The support zone, pg 7-4.

Please explain more fully what is gross decontamination equipment and why it is in this zone and not in the CRZ.

Wind direction determination must have real time monitoring and readily visible by all onsite personnel.

DRAFT GROUP II RFI WORKPLAN

INTRODUCTION

1. Background Sampling

Have USGS personnel been trained and or certified on proper procedures for hazardous waste sampling via EPA Region IV Environmental Services Division (ESD) Athens?

2. Background Wells

Given that regional groundwater movement is south and westerly, there appear to be no true background wells for the Naval Facility Proper. All background wells noted on Figure 1 appear to be down gradient of the runway and it's associated SWMU's.

SWMU 1

3. Section 4.3: Soil Investigation, bottom of pg 9.

The statement "A pilot boring will be drilled in an upgradient location..." is unclear because the perched water zone gradient has not been determined.

4. Section 4.3: Sediment, pg 11.

The TDSF suggests that this sample media be designated as a sediment/soil sample.

5. Section 4.3: Ground Water Investigation, pg 15. Top paragraph after Bullets.

Please clarify the intended hydrogeolgic zone these wells are to evaluate. There are three (3) proposed hydrogeologic zones above the the Memphis Sand at the site.

SWMU 2

6. Section 2.1: Ground Water, Top Para. pg 9.

Please clarify as to whether or not the Big Creek Drainage Canal is considered the local drain for the water table aquifer or the perched zone. Also, please indicate whether Big Creek Drainage is a wet weather conveyance or a minimally flowing perennial stream.

7. Section 4.3: Soil Investigation, pg 13.

Sampling approach proposed for this site may not adequately address this site due to the trench and fill type operation conducted here. Do the proposed soil sample locations correspond with the cursory geophysical information in Appendix B. Is this sampling approach proposed here to determine migration of contaminants or is it to ascertain source characteristics?

Please clarify, what is an upgradient soil sample? Is this referring to the perched water zone? If so, do not cross terminologies, or detail and describe this proposed correlation.

8. Section 4.3: Soil Investigation, pg 13.

Is Big Creek Drainage Canal considered a perrenial stream? If not, then these are soil samples not sediment.

SWMU 5

9. Section 2.2: Stratigraphy, pg 7.

In the TDSF copy of this document, the geological cross sections and potentimetric maps are located in Appendix B not Appendix A.

10. Section 4.1: RFI Preliminary Soil gas Survey - USGS 1991 pg 12.

USGS needs to be submit raw data in a more timely manner.

11. Section 4.3: Soil Investigation, pg 13.

Continual references are being made to downgradient as related to soil investigations, unless soils are sampled at sufficient to be impacted by gravity flow from source areas or sufficiently deep so as to contain residuals or volatiles from perched groundwater, any discussion of downgradient is meaningless. Please clarify, within discussion, what is meant by down gradient soil samples.

12. Section 4.3: Soil Investigation, pg 17.

This section is confusing. How are upgradient and downgradient locations defined? Does sufficient control exist to confirm any gradient direction?

13. Section 4.3: Ground water Investigation, pg 18.

Chlorinated VOC's are not naturally occuring. Is there another proposed source for these VOC's, or does the site boundaries for this SWMU need to be redefined?

14. Section 4.3: Ground water Investigation, pg 19.

Please clarify, is the purpose of this portion of the investigation for the perched water zone or the water table aquifer?

SWMU 8

15. General Comments:

1. Due to 1) the alleged small amount of waste dumped at this site, 2) the locations of these dumped waste are not fully identifed, and 3) the geophysical data available for this site is limited, the TDSF suggests that, in order to be parsimonious with available resources, additional geophysical field screening methods be employed (i.e. EM, GPR, Mag.) to determine further the location and size of the site before any intrusive soil and groundwater sampling programs are carried out at this SWMU.

2. Terminology - Landfills are designated under RCRA as having an engineered liner and a maintained impermeable cap upon closure. Dumps and or pits are usually holes in the ground with no engineered liners or maintained covers.

16. Section 2.2: Groundwater, pg 7.

A southeasterly groundwater flow is presumed at this location. However, no more that 1300' to the southeast of this location groundwater flow is to the north. It would not be advisable to speculate regarding groundwater flow direction here.

18. Section 4.3: Groundwater Investigation, pg 14.

To reiterate from SWMU 8, in order to be cost effective with available resources, this site also needs more geophysical investigations before an intrusive drilling and soil sampling program is initiated.

TDSWM COMMENTS ON
DRAFT GROUP II SITE INVESTIGATION PROGRAM
RCRA FACILITY INVESTIGATION
DATED SEPTEMBER 15, 1993
MEMPHIS, TENNESSEE
MAY 1994

GENERAL COMMENT

1. Under the heading "Soil Investigation" at each SWMU, soil sample analysis should be completed for (1) each two foot interval from the surface to a depth of 6 feet; (2) the two foot interval immediately above the first encountered groundwater; and (3) any interval between 6 feet and the groundwater interface interval which yields the highest field GC reading.

SWMU 1

1. Section 4.3 Soil Investigation, pg 10

   Explain why the shallow soil sample (1-2 feet) to be collected from the proposed boring southwest of the burn area is to be analyzed for volatile organic compounds only, while all the deeper samples will have full scan analysis.